

nyhart

***Indiana State Teachers'
Retirement Fund
1996 Account***

***Annual Actuarial Valuation
June 30, 2015***

Indiana State Teachers' Retirement Fund 1996 Account

Annual Actuarial Valuation as of June 30, 2015

Nyhart

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November 1, 2015

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***The Board of Trustees
Indiana Public Retirement System
Indianapolis, IN***

Dear Board Members:

An actuarial valuation is prepared annually for the Indiana State Teachers' Retirement Fund 1996 Account. Submitted in this report are the results of the June 30, 2015 actuarial valuation.

Census Data and Asset Information

The member census data and the asset information for this valuation were furnished by the Chief Financial Officer and Staff. Their efforts and cooperation in furnishing these materials are acknowledged with appreciation. We did not audit the information provided, but we did review it thoroughly for reasonableness and compared it with the prior year's submission for consistency.

Assumptions and Methods

The majority of the actuarial assumptions used in the June 30, 2015 valuation were adopted by the Board pursuant to the Experience Study completed in April 2015, which reflects the experience period from July 1, 2011 to June 30, 2014. The Board also adopted a change to the mortality basis effective with the June 30, 2015 valuation, and confirmed the 6.75% interest rate in use since 2012. Assumptions are summarized in the Assumptions and Methods section of this report. These assumptions and methods have been used to develop the Actuarially Determined Contribution and are consistent with the accounting requirements detailed in GASB Statements No. 67 and No. 68.

Benefit obligations in the June 30, 2015 valuation are determined using June 30, 2014 census data and rolled-forward to the June 30, 2015 measurement date at the valuation interest rate, using actual distributions and ASA account returns during that period. We are not aware of any material events that would require additional adjustments to the benefit obligations for changes to the population not anticipated in the demographic assumptions used in the valuation.

Funding Objective

The funding objective of the Indiana State Teachers' Retirement Fund 1996 Account is to establish and receive contributions that, when invested at the assumed rate of return, will ultimately accumulate assets over each member's working lifetime that will be sufficient to pay expected retirement allowances. As such, an employer contribution rate is calculated each year. That rate is then considered in conjunction with the goal of maintaining a relatively stable contribution over time.

Fund Structure

The Indiana State Teachers' Retirement Fund (TRF) is one fund comprised of a two-account structure in compliance with Indiana Code Section 5-10.4-2-2:

The 1996 Account consists of members who were:

1. hired on or after July 1, 1995; or
2. hired before July 1, 1995, and prior to June 30, 2005:
 - a. were either hired by another school corporation or institution covered by TRF, or
 - b. were re-hired by a covered prior employer.

Characteristics of the 1996 Account

1. As members depart from active service in the Pre-1996 Account, their replacements will become members of the 1996 Account. If the 1996 Account were a stand-alone plan, this pattern of departures and hirings would produce a fairly constant population size.
2. Defined Benefits payable from the 1996 Account are funded by contributions from local school corporations or other institutions that employ covered members. At the time of retirement, ASA benefits payable from the 1996 Account are funded by the annuitization of 1996 Account member contributions.

Funding Arrangements

Defined Benefits payable from the 1996 Account are funded through employer percent-of-pay contributions. The Board of the Indiana Public Retirement System sets this contribution rate after reviewing the most recent actuarial valuation report.

The contribution rate of 7.50% for fiscal year 2016 was set by the Board in fiscal year 2015. The contribution rate of 7.50% for fiscal year 2017 was set by the Board in fiscal year 2016.

Progress Toward Realization of Financing Objectives

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a Plan's funded status. In the absence of benefit improvements, it should increase over time, until it reaches 100%. The funded ratio of the 1996 Account decreased to 92.5% from 96.1% for the preceding year. Based on the actuarial assumptions, it is anticipated that the 1996 Account will attain 100% funded status on 6/30/2026.

Certification

We have included several schedules and exhibits in this report, including the following:

Financial Section

- Note 1 – Tables of Plan Membership
- Note 8 – Net Pension Liability and Actuarial Information – Defined Benefit Plans
- Schedule of Changes in Net Pension Liability and Net Pension Liability
- Schedule of Contributions (Actuarially Determined Contribution)
- Schedule of Notes to Required Supplementary Information

Actuarial Section

- Summary of INPRS Funded Status
- Historical Summary of Actuarial Valuation Results by Retirement Plan (Schedule of Funding Progress)
- Summary of Actuarial Assumptions, Methods and Plan Provisions
- Analysis of Financial Experience (Unfunded Actuarial Accrued Liability Reconciliation)
- Solvency Test
- Schedule of Active Member Valuation Data
- Schedule of Retirants and Beneficiaries

Statistical Section

- Membership Data Summary
- Ratio of Active Members to Annuitants
- Schedule of Benefit Recipients by Type of Benefit Option
- Schedule of Average Benefit Payments

To the best of our knowledge, this report presents a fair position of the funded status of the plan in accordance with the Actuarial Standards of Practice as described by the American Academy of Actuaries. In addition, information has been prepared in accordance with applicable government standards of financial reporting for defined benefit pension plans.

The actuarial valuation is prepared using information which has been reconciled and reviewed for reasonableness. We are not aware of any material inadequacy in employee census or asset values. The census information and the asset information have been provided to us by the Chief Financial Officer and Staff. We have not audited the information at the source, and therefore do not accept responsibility for the accuracy or the completeness of the data on which the information is based.

In our opinion, the actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States.

Respectfully submitted,



Michael Zurek, EA, MAAA



Matt Sherertz, ASA, EA



Tayt V. Odom, FSA, EA, MAAA

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Comments

Contribution Rates

The Calculated Contribution Rate section shows the calculated rate for the 1996 Account. That rate is determined as if the 1996 Account were a stand-alone plan.

Plan Provisions

There is no ad-hoc COLA on January 1, 2016. Instead, retirees were paid a service-related lump sum (i.e., referred to as 13th check) in September 2015. These changes are reflected in the June 30, 2015 valuation. Any future COLA is estimated by an ongoing assumption of 1.0% annual increases in all pension payments beginning January 1, 2017.

ASA annuitizations are scheduled to be based on a 5.75% conversion rate for the period from October 1, 2014 through September 30, 2015, and at a 4.50% conversion rate for the period from October 1, 2015 through December 31, 2016. After January 1, 2017, annuity conversions will occur outside of the plan. Benefit obligations in the June 30, 2014 valuation have been adjusted for the anticipated gains through December 31, 2016 for conversions at interest rates lower than the valuation interest rate of 6.75%.

We are not aware of any other material changes in the plan provisions since the June 30, 2014 actuarial valuation.

Census Data

Census data for the valuation was provided by INPRS. We have thoroughly examined the data for reasonableness and consistency with prior years, but we did not otherwise audit it.

Assumptions and Methods

The actuarial assumptions used in the June 30, 2015 valuation are based on plan experience from July 1, 2011 to June 30, 2014. The Board adopted a change to the mortality basis effective with the June 30, 2015 valuation and confirmed the 6.75% interest rate assumption in use since 2012.

Benefit obligations in the June 30, 2015 valuation are determined using June 30, 2014 census data and rolled-forward to the June 30, 2015 measurement date at the valuation interest rate, using actual distributions and ASA account returns during that period. We are not aware of any material events that would require additional adjustments to the benefit obligations for changes to the population not anticipated in the demographic assumptions used in the valuation.

Investment Experience

The investment return for the year ended June 30, 2015 was lower than the assumed 6.75% return. The assets of the TRF 1996 Account are commingled with the assets of other funds administered by INPRS. The TRF money-weighted return was 0.57% during fiscal 2015. Under the asset valuation method, market gains and losses are spread over a four-year period. The Market Value of Assets is currently \$82 million lower than the Actuarial Value of Assets, meaning the plan is currently in a position of having net deferred investment losses to be recognized in future years.

Challenges

The 1996 Account has been steadily funded since its inception. As membership in that portion of the plan increases, the amount of required contributions will increase as a dollar amount, but should remain relatively stable as a percentage of covered payroll with plan experience causing gradual changes.

Summary of Key Valuation Results

| | June 30, 2015 | June 30, 2014 | June 30, 2013 | June 30, 2012 |
|---|--------------------|--------------------|--------------------|--------------------|
| Member Information | | | | |
| Number | | | | |
| Active Members | 52,424 | 51,204 | 51,204 | 47,885 |
| Inactive Vested Members | 4,132 | 3,103 | 3,103 | 2,985 |
| Inactive Nonvested Members | 12,292 | 11,147 | 11,147 | 12,528 |
| Retired Members and Beneficiaries | 4,136 | 3,665 | 3,665 | 2,971 |
| Total | 72,984 | 69,119 | 69,119 | 66,369 |
| Valuation Payroll | \$ 2,827,310,987 | \$ 2,740,661,321 | \$ 2,740,939,967 | \$ 2,594,952,143 |
| Projected Payroll | \$ 3,078,600,000 | \$ 2,987,300,000 | | |
| Annual Benefit Payments | | | | |
| Annuity | \$ 8,189,292 | \$ 7,111,980 | \$ 7,111,980 | \$ 5,885,028 |
| Pension | 67,524,240 | 60,057,396 | 60,057,396 | 49,589,640 |
| Total | \$ 75,713,532 | \$ 67,169,376 | \$ 67,169,376 | \$ 55,474,668 |
| Assets and Liabilities | | | | |
| Accrued Liability | | | | |
| ASA Account Balance | \$ 1,170,914,523 | \$ 1,120,728,729 | \$ 991,924,506 | \$ 899,338,904 |
| ASA Annuities | 108,501,422 | 86,516,737 | 78,374,599 | 65,008,426 |
| Pension: Retirees | 788,534,587 | 672,727,439 | 703,495,761 | 581,152,801 |
| Pension: Non-retirees | 3,837,740,501 | 3,357,020,264 | 2,975,573,809 | 2,792,808,887 |
| Total | \$ 5,905,691,033 | \$ 5,236,993,169 | \$ 4,749,368,675 | \$ 4,338,309,018 |
| Market Value of Assets | | | | |
| ASA Account Balance | \$ 1,170,914,523 | \$ 1,120,728,729 | \$ 991,924,506 | \$ 899,338,904 |
| ASA Annuities | 108,501,422 | 86,516,737 | 78,374,599 | 65,008,426 |
| Pension: Retirees | 788,534,587 | 672,727,439 | 703,495,761 | 581,152,801 |
| Pension: Non-retirees | 3,311,162,510 | 3,309,469,425 | 2,659,891,307 | 2,472,648,706 |
| Total | \$ 5,379,113,042 | \$ 5,189,442,330 | \$ 4,433,686,173 | \$ 4,018,148,837 |
| Actuarial Value of Assets | | | | |
| ASA Account Balance | \$ 1,170,914,523 | \$ 1,120,728,729 | \$ 991,924,506 | \$ 899,338,904 |
| ASA Annuities | 108,501,422 | 86,516,737 | 78,374,599 | 65,008,426 |
| Pension: Retirees | 788,534,587 | 672,727,439 | 703,495,761 | 581,152,801 |
| Pension: Non-retirees | 3,393,221,851 | 3,155,258,596 | 2,680,033,218 | 2,390,954,905 |
| Total | \$ 5,461,172,383 | \$ 5,035,231,501 | \$ 4,453,828,084 | \$ 3,936,455,036 |
| Unfunded Accrued Liability | | | | |
| ASA Account Balance | \$ 0 | \$ 0 | \$ 0 | \$ 0 |
| ASA Annuities | 0 | 0 | 0 | 0 |
| Pension: Retirees | 0 | 0 | 0 | 0 |
| Pension: Non-retirees | 444,518,650 | 201,761,668 | 295,540,591 | 401,853,982 |
| Total | \$ 444,518,650 | \$ 201,761,668 | \$ 295,540,591 | \$ 401,853,982 |
| Funded Percentage | | | | |
| ASA Account Balance | 100.0% | 100.0% | 100.0% | 100.0% |
| ASA Annuities | 100.0% | 100.0% | 100.0% | 100.0% |
| Pension: Retirees | 100.0% | 100.0% | 100.0% | 100.0% |
| Pension: Non-retirees | 88.4% | 94.0% | 90.1% | 85.6% |
| Total | 92.5% | 96.1% | 93.8% | 90.7% |
| Pension Normal Cost | \$ 167,836,193 | \$ 170,892,424 | \$ 155,314,388 | \$ 147,336,605 |
| Annual Costs | | | | |
| | Fiscal 2017 | Fiscal 2016 | Fiscal 2015 | Fiscal 2014 |
| Actuarially Determined Contribution (ADC) | \$ 216,422,370 | \$ 201,966,380 | \$ 178,260,000 | \$ 177,711,000 |
| Calculated Contribution Rate | | | | |
| Normal Cost | 5.45% | 5.72% | 5.67% | 5.68% |
| Amortization of Unfunded Liability | 1.12% | 0.54% | 0.83% | 1.16% |
| Total | 6.57% | 6.26% | 6.50% | 6.84% |
| Actual Employer Contribution Rate | 7.50% | 7.50% | 7.50% | 7.50% |

Valuations on and after June 30, 2014 are based on census data collected at the prior measurement date.

Unfunded Accrued Liability

| \$Millions | | | | |
|-------------------|--------------------------|----------------------------------|-----------------------------------|--------------------------|
| June 30 | Accrued Liability | Actuarial Value of Assets | Unfunded Accrued Liability | Funded Percentage |
| 1996 | \$ 48 | \$ 21 | \$ 27 | 43.8% |
| 1997 | 176 | 72 | 104 | 40.9% |
| 1998 | 298 | 136 | 162 | 45.6% |
| 1999 | 498 | 240 | 258 | 48.2% |
| 2000 | 706 | 368 | 338 | 52.1% |
| 2001 | 828 | 447 | 381 | 54.0% |
| 2002 | 1,167 | 621 | 546 | 53.2% |
| 2003 | 1,392 | 826 | 566 | 59.3% |
| 2004 | 1,649 | 1,039 | 610 | 63.0% |
| 2005 | 2,011 | 1,268 | 743 | 63.1% |
| 2006 | 2,363 | 2,209 | 154 | 93.5% |
| 2007 | 2,828 | 2,713 | 115 | 95.9% |
| 2008 | 2,958 | 3,080 | (122) | 104.1% |
| 2009 | 3,136 | 2,921 | 215 | 93.1% |
| 2010 | 3,615 | 3,423 | 192 | 94.7% |
| 2011 | 3,997 | 3,665 | 332 | 91.7% |
| 2012 | 4,338 | 3,936 | 402 | 90.7% |
| 2013 | 4,750 | 4,454 | 296 | 93.8% |
| 2014 | 5,237 | 5,035 | 202 | 96.1% |
| 2015 | 5,906 | 5,461 | 445 | 92.5% |

Active Member Data

| June 30 | Number | Valuation Payroll (\$000s) | Average | | | |
|---------|--------|----------------------------------|---------|---------|----------|-------------------|
| | | | Age | Service | Pay | Pay Increase % |
| 1996 | 8,683 | \$ 72,506 | 32.2 | 1.3 | \$ 8,350 | |
| 1997 | 20,686 | 245,168 | 33.0 | 1.8 | 11,852 | 41.9% |
| 1998 | 25,634 | 395,758 | 33.6 | 2.2 | 15,439 | 30.3 |
| 1999 | 21,185 | 538,837 | 35.3 | 4.0 | 25,435 | 64.7 |
| 2000 | 24,950 | 631,072 | 36.4 | 4.7 | 25,293 | (0.6) |
| 2001 | 24,846 | 754,426 | 36.3 | 5.5 | 30,364 | 20.0 |
| 2002 | 27,873 | 1,004,515 | 36.7 | 6.1 | 36,039 | 18.7 |
| 2003 | 29,936 | 1,136,864 | 37.0 | 6.5 | 37,976 | 5.4 |
| 2004 | 32,000 | 1,267,173 | 37.3 | 6.9 | 39,599 | 4.3 |
| 2005 | 34,826 | 1,428,604 | 37.5 | 7.2 | 41,021 | 3.6 |
| 2006 | 36,356 | 1,565,341 | 37.7 | 7.5 | 43,056 | 5.0 |
| 2007 | 39,307 | 1,891,605 | 38.2 | 7.8 | 48,124 | 11.8 |
| 2008 | 41,628 | 2,052,719 | 38.1 | 8.2 | 49,311 | 2.5 |
| 2009 | 45,046 | 2,308,548 | 38.3 | 8.4 | 51,249 | 3.9 |
| 2010 | 46,433 | 2,447,509 | 38.6 | 8.8 | 52,711 | 2.9 |
| 2011 | 46,633 | 2,507,193 | 39.2 | 9.4 | 53,764 | 2.0 |
| 2012 | 47,885 | 2,594,952 | 39.4 | 9.8 | 54,191 | 0.8 |
| 2013 | 51,204 | 2,740,940 | 39.3 | 9.8 | 53,530 | (1.2) |
| 2014* | 51,204 | 2,740,940 | 39.3 | 9.8 | 53,530 | (1.2) |
| 2015* | 52,424 | 2,827,311 | 39.4 | 10.0 | 53,932 | 0.8 |

* Valuations on and after June 30, 2014 are based on census data collected at the prior measurement date.

Reconciliation of Market Value of Assets

| | June 30, 2014 thru June 30, 2015 | June 30, 2013 thru June 30, 2014 |
|--|---|---|
| Market Value, beginning of year | \$ 5,189,442,330 | \$ 4,433,686,173 |
| Member Contributions | \$ 86,515,294 | \$ 81,399,655 |
| Employer Contributions | 205,763,142 | 194,750,861 |
| Non-Employer Contributing Entity Contributions | 0 | 0 |
| Benefit Payments | (127,898,876) | (108,719,624) |
| Net Transfers | <u>5,889,210</u> | <u>8,258,032</u> |
| Non-Investment Net Cash Flow | \$ 170,268,770 | \$ 175,688,924 |
| Administrative and Project Expenses | \$ (6,185,233) | \$ (6,707,586) |
| Investment Return | <u>25,587,175</u> | <u>586,774,819</u> |
| Net Investment Return | \$ 19,401,942 | \$ 580,067,233 |
| Market Value, end of year | \$ 5,379,113,042 | \$ 5,189,442,330 |
| Market Value of Assets Approximate Time-Weighted Annual Rate of Return ¹ | 0.4% | 12.8% |

¹ Consolidated pension and ASA account return, net of investment and administrative expenses, assumes cash flows occur at mid-year.

Development of the Actuarial Value of Assets

| | June 30, 2014 thru June 30, 2015 | June 30, 2013 thru June 30, 2014 |
|--|--|--|
| 1. Total Actuarial Value, beginning of year | \$10,393,582,888 | \$ 9,688,931,998 |
| 2. Total ASA Account Balance, beginning of year | <u>\$ 2,836,068,903</u> | <u>\$ 2,804,754,433</u> |
| 3. Total Actuarial Value, Net of ASA Account Balance, beginning of year [(1) – (2)] | \$ 7,557,513,985 | \$ 6,884,177,565 |
| 4. Total Market Value, Net of ASA Account Balance, beginning of year | \$ 7,855,240,302 | \$ 6,844,124,317 |
| 5. Total Market Value, Net of ASA Account Balance, end of year | \$ 7,886,652,537 | \$ 7,855,240,302 |
| 6. Total Non-Investment Net Cash Flow | 40,489,264 | 27,814,880 |
| 7. Total Net Investment Return | | |
| a. Expected [.0675 x ((4)+0.5*(6))] | 531,595,233 | 462,917,144 |
| b. Actual [(5) - (4) - (6)] | (9,077,029) | 983,301,105 |
| 8. Total Current Year Market Value Gain/(Loss) [(7b) - (7a)] | \$ (540,672,262) | \$ 520,383,961 |
| 9. Total Deferred Recognition of Investment Gain/(Loss) | | |
| a. Current Fiscal Year (75% of (8)) | \$ (405,504,197) | \$ 390,287,971 |
| b. Current Fiscal Year - 1 (50%) | 260,191,981 | (16,953,030) |
| c. Current Fiscal Year - 2 (25%) | (8,476,515) | (75,608,624) |
| d. Total [(a) + (b) + (c)] | \$ (153,788,731) | \$ 297,726,317 |
| 10. Total Preliminary Actuarial Value, end of year [(5) - (9d)] | \$ 8,040,441,268 | \$ 7,557,513,985 |
| a. 80% of Market Value, end of year [80% of (5)] | 6,309,322,030 | 6,284,192,242 |
| b. 120% of Market Value, end of year [120% of (5)] | 9,463,983,044 | 9,426,288,362 |
| 11. Total Actuarial Value, end of year [(10), but not Greater than (10b), nor Less than (10a)] | \$ 8,040,441,268 | \$ 7,557,513,985 |
| 12. Total Actuarial Value as a % of Market Value [(11) / (5)] | 101.9499874% | 96.2098382% |
| 13. Total Net Investment Return on Actuarial Value [(11) - (3) - (6)] | \$ 442,438,019 | \$ 645,521,540 |
| 14. Total Actuarial Value Net Rate of Return [(13) / ((3) + 0.5*(6))] | 5.84% | 9.36% |
| 15. 1996 Market Value, Net of ASA Account Balance, end of year | \$ 4,208,198,519 | \$ 4,068,713,601 |
| 16. 1996 Actuarial Value, Net of ASA Account Balance, end of year [(12) x (15)] | \$ 4,290,257,860 | \$ 3,914,502,772 |
| 17. 1996 ASA Account Balance, end of year | \$ 1,170,914,523 | \$ 1,120,728,729 |
| 18. 1996 Actuarial Value, end of year [(16) + (17)] | \$ 5,461,172,383 | \$ 5,035,231,501 |

The Actuarial Value of Assets is determined in total for TRF Pre-1996 and 1996 Accounts (lines 1 - 14) and applied on a plan basis (lines 15 – 18.)

Accrued Liability Reconciliation

| | June 30, 2014 thru June 30, 2015 | June 30, 2013 thru June 30, 2014 |
|---|---|---|
| Total Accrued Liability, beginning of year | \$ 5,236,993,169 | \$ 4,749,368,675 |
| ASA Account Balance, beginning of year | \$ 1,120,728,729 | \$ 991,924,506 |
| Accrued Liability, Net of ASA Account Balance, beginning of year | \$ 4,116,264,440 | \$ 3,757,444,169 |
| Normal Cost | 170,892,424 | 155,314,388 |
| Actual Benefit Payments | (90,266,941) | (77,253,362) |
| Transfers | 27,488,475 | 22,496,220 |
| Expected Interest | <u>287,264,315</u> | <u>262,263,149</u> |
| Expected Accrued Liability, Net of ASA Account Balance, end of year | \$ 4,511,642,713 | \$ 4,120,264,564 |
| Sources of Change: | | |
| Experience (Gain) or Loss | (34,483,801) | 7,204,077 |
| Mortality Change ¹ | 303,071,328 | 0 |
| Other Assumption Changes ² | (39,080,278) | 0 |
| Additional Liability due to Cost-of-Living Adjustment ³ | (6,373,452) | (6,700,000) |
| Plan Provision Change ⁴ | <u>0</u> | <u>(4,504,201)</u> |
| Accrued Liability, Net of ASA Account Balance, end of year | \$ 4,734,776,510 | \$ 4,116,264,440 |
| ASA Account Balance, end of year | \$ 1,170,914,523 | \$ 1,120,728,729 |
| Total Accrued Liability, end of year | \$ 5,905,691,033 | \$ 5,236,993,169 |

¹ The June 30, 2015 mortality assumption was updated to the RP-2014 White Collar mortality table with Social Security Administration improvement scale applied from 2006.

² Assumption changes other than mortality adopted on June 30, 2015 pursuant to the 2015 experience study.

³ 13th check to retirees in lieu of the assumed 2016 and 2015 1.0% COLAs.

⁴ Recognition of cost of future ASA account conversions to annuities from October 1, 2014 through December 31, 2016 at conversion interest rates lower than the valuation interest rate of 6.75%.

Asset and Liability Allocation¹

| | June 30, 2015 | | |
|-------------------------------|------------------|----------------|------------------|
| | Non-Retired | Retired | Total |
| Accrued Liability (AL) | | | |
| ASA Balance | \$ 1,159,597,089 | \$ 11,317,434 | \$ 1,170,914,523 |
| ASA Annuities | 0 | 108,501,422 | 108,501,422 |
| Pension: Retirees | 0 | 788,534,587 | 788,534,587 |
| Pension: Non-Retirees | 3,837,740,501 | 0 | 3,837,740,501 |
| Total | \$ 4,997,337,590 | \$ 908,353,443 | \$ 5,905,691,033 |
| Market Assets | | | |
| ASA Balance | \$ 1,159,597,089 | \$ 11,317,434 | \$ 1,170,914,523 |
| ASA Annuities | 0 | 108,501,422 | 108,501,422 |
| Pension: Retirees | 0 | 788,534,587 | 788,534,587 |
| Pension: Non-Retirees | 3,311,162,510 | 0 | 3,311,162,510 |
| Total | \$ 4,470,759,599 | \$ 908,353,443 | \$ 5,379,113,042 |
| Actuarial Assets | | | |
| ASA Balance | \$ 1,159,597,089 | \$ 11,317,434 | \$ 1,170,914,523 |
| ASA Annuities | 0 | 108,501,422 | 108,501,422 |
| Pension: Retirees | 0 | 788,534,587 | 788,534,587 |
| Pension: Non-Retirees | 3,393,221,851 | 0 | 3,393,221,851 |
| Total | \$ 4,552,818,940 | \$ 908,353,443 | \$ 5,461,172,383 |
| Unfunded AL | | | |
| ASA Balance | \$ 0 | \$ 0 | \$ 0 |
| ASA Annuities | 0 | 0 | 0 |
| Pension: Retirees | 0 | 0 | 0 |
| Pension: Non-Retirees | 444,518,650 | 0 | 444,518,650 |
| Total | \$ 444,518,650 | \$ 0 | \$ 444,518,650 |

| | June 30, 2014 | | |
|-------------------------------|------------------|----------------|------------------|
| | Non-Retired | Retired | Total |
| Accrued Liability (AL) | | | |
| ASA Balance | \$ 1,102,685,520 | \$ 18,043,209 | \$ 1,120,728,729 |
| ASA Annuities | 0 | 86,516,737 | 86,516,737 |
| Pension: Retirees | 0 | 672,727,439 | 672,727,439 |
| Pension: Non-Retirees | 3,357,020,264 | 0 | 3,357,020,264 |
| Total | \$ 4,459,705,784 | \$ 777,287,385 | \$ 5,236,993,169 |
| Market Assets | | | |
| ASA Balance | \$ 1,102,685,520 | \$ 18,043,209 | \$ 1,120,728,729 |
| ASA Annuities | 0 | 86,516,737 | 86,516,737 |
| Pension: Retirees | 0 | 672,727,439 | 672,727,439 |
| Pension: Non-Retirees | 3,309,469,425 | 0 | 3,309,469,425 |
| Total | \$ 4,412,154,945 | \$ 777,287,385 | \$ 5,189,442,330 |
| Actuarial Assets | | | |
| ASA Balance | \$ 1,102,685,520 | \$ 18,043,209 | \$ 1,120,728,729 |
| ASA Annuities | 0 | 86,516,737 | 86,516,737 |
| Pension: Retirees | 0 | 672,727,439 | 672,727,439 |
| Pension: Non-Retirees | 3,155,258,596 | 0 | 3,155,258,596 |
| Total | \$ 4,257,944,116 | \$ 777,287,385 | \$ 5,035,231,501 |
| Unfunded AL | | | |
| ASA Balance | \$ 0 | \$ 0 | \$ 0 |
| ASA Annuities | 0 | 0 | 0 |
| Pension: Retirees | 0 | 0 | 0 |
| Pension: Non-Retirees | 201,761,668 | 0 | 201,761,668 |
| Total | \$ 201,761,668 | \$ 0 | \$ 201,761,668 |

¹ Assets are allocated first to member ASA account liabilities, then to ASA annuity liabilities, then to Pension: Retirees liabilities, and finally to Pension: Non-Retirees liabilities to determine unfunded accrued liabilities.

Solvency Test

\$Thousands

| Year Ended June 30 | Accrued Liability | | | | Portion of Accrued Liability Covered by Assets | | | | |
|-----------------------------|-----------------------------------|----------------------------------|---|-------------|---|-------------------------------|--------------------------|---|--------|
| | Active Member Contributions | Retirees and Beneficiaries | Active Member (Employer Financed Portion) | Total | Actuarial Value of Assets | Active Member Contribs. | Retirees and Bfcys | Active Member (Employer Financed Portion) | Total |
| 2005 | \$535,179 | \$219,722 | \$1,255,845 | \$2,010,746 | \$1,268,575 | 100.0% | 100.0% | 40.9% | 63.1% |
| 2006 | \$602,051 | \$282,638 | \$1,478,412 | \$2,363,101 | \$2,209,468 | 100.0% | 100.0% | 89.6% | 93.5% |
| 2007 | \$656,918 | \$449,452 | \$1,721,184 | \$2,827,554 | \$2,713,051 | 100.0% | 100.0% | 93.3% | 95.9% |
| 2008 | \$649,840 | \$514,933 | \$1,792,985 | \$2,957,758 | \$3,080,057 | 100.0% | 100.0% | 100.0% | 104.1% |
| 2009 | \$655,843 | \$432,942 | \$2,046,748 | \$3,135,533 | \$2,920,735 | 100.0% | 100.0% | 89.5% | 93.1% |
| 2010 | \$750,575 | \$483,117 | \$2,380,867 | \$3,614,559 | \$3,422,554 | 100.0% | 100.0% | 91.9% | 94.7% |
| 2011 | \$840,341 | \$562,445 | \$2,594,053 | \$3,996,839 | \$3,664,657 | 100.0% | 100.0% | 87.2% | 91.7% |
| 2012 | \$882,942 | \$662,558 | \$2,792,809 | \$4,338,309 | \$3,936,455 | 100.0% | 100.0% | 85.6% | 90.7% |
| 2013 | \$975,309 | \$798,486 | \$2,975,573 | \$4,749,368 | \$4,453,828 | 100.0% | 100.0% | 90.1% | 93.8% |
| 2014 | \$1,102,686 | \$777,287 | \$3,357,020 | \$5,236,993 | \$5,035,232 | 100.0% | 100.0% | 94.0% | 96.1% |
| 2015 | \$1,159,597 | \$908,353 | \$3,837,741 | \$5,905,691 | \$5,461,172 | 100.0% | 100.0% | 88.4% | 92.5% |

Analysis of Financial Experience¹

| \$Thousands | June 30, 2014 thru June 30, 2015 | June 30, 2013 thru June 30, 2014 |
|---|---|---|
| Unfunded Accrued Liability, beginning of year | \$ 201,762 | \$ 295,540 |
| (Gain) / Loss: | | |
| Actuarial Value of Assets | \$ 36,284 | \$ (74,202) |
| Actuarial Accrued Liabilities | (34,484) | 7,204 |
| Amortization of Existing Bases | (16,661) | (15,576) |
| Mortality Change ² | 303,071 | 0 |
| Other Assumption Changes ³ | (39,080) | 0 |
| Additional Liability due to Cost-of-Living Adjustment ⁴ | (6,373) | (6,700) |
| Plan Provision Change ⁵ | <u>0</u> | <u>(4,504)</u> |
| Net Change | \$ 242,757 | \$ (93,778) |
| Unfunded Accrued Liability, end of year | \$ 444,519 | \$ 201,762 |

¹ Based on pension and ASA annuities only, i.e. net of ASA account balances.

² The June 30, 2015 mortality assumption was updated to the RP-2014 White Collar mortality table with Social Security Administration improvement scale applied from 2006.

³ Assumption changes other than mortality adopted on June 30, 2015 pursuant to the 2015 experience study.

⁴ 13th check to retirees in lieu of the assumed 2016 and 2015 1.0% COLAs.

⁵ Recognition of cost of future ASA account conversions to annuities from October 1, 2014 through December 31, 2016 at conversion interest rates lower than the valuation interest rate of 6.75%.

Sensitivity to Changes in Assumed Investment Return / Interest Rate

| \$Millions | Assumed Investment Return / Interest Rate | | | | |
|---|--|----------------|----------------|----------------|----------------|
| | 5.75% | 6.00% | 6.25% | 6.50% | 6.75% |
| Funded Status | | | | | |
| Actuarial Accrued Liability | \$ 6,787.1 | \$ 6,552.5 | \$ 6,327.7 | \$ 6,112.2 | \$ 5,905.7 |
| Actuarial Value of Assets | <u>5,461.2</u> | <u>5,461.2</u> | <u>5,461.2</u> | <u>5,461.2</u> | <u>5,461.2</u> |
| Unfunded Accrued Liability | \$ 1,325.9 | \$ 1,091.3 | \$ 866.5 | \$ 651.0 | \$ 444.5 |
| Funded Ratio | 80.5% | 83.3% | 86.3% | 89.3% | 92.5% |
| Actuarially Determined Contribution Rate | | | | | |
| Normal Cost % | 7.31% | 6.79% | 6.31% | 5.87% | 5.45% |
| UAL Amortization % | <u>2.94%</u> | <u>2.48%</u> | <u>2.03%</u> | <u>1.57%</u> | <u>1.12%</u> |
| Actuarially Determined Contribution % | 10.25% | 9.27% | 8.34% | 7.44% | 6.57% |

| \$Millions | Assumed Investment Return / Interest Rate | | | | |
|---|--|----------------|----------------|----------------|----------------|
| | 7.00% | 7.25% | 7.50% | 7.75% | 8.00% |
| Funded Status | | | | | |
| Actuarial Accrued Liability | \$ 5,720.4 | \$ 5,542.3 | \$ 5,371.2 | \$ 5,206.8 | \$ 5,048.7 |
| Actuarial Value of Assets | <u>5,461.2</u> | <u>5,461.2</u> | <u>5,461.2</u> | <u>5,461.2</u> | <u>5,461.2</u> |
| Unfunded Accrued Liability | \$ 259.2 | \$ 81.1 | \$ (90.0) | \$ (254.4) | \$ (412.5) |
| Funded Ratio | 95.5% | 98.5% | 101.7% | 104.9% | 108.2% |
| Actuarially Determined Contribution Rate | | | | | |
| Normal Cost % | 5.08% | 4.73% | 4.40% | 4.10% | 3.81% |
| UAL Amortization % | <u>0.69%</u> | <u>0.25%</u> | <u>-0.18%</u> | <u>-0.62%</u> | <u>-1.05%</u> |
| Actuarially Determined Contribution % | 5.77% | 4.98% | 4.22% | 3.48% | 2.76% |

Calculated Employer Contribution Rate

| | June 30, 2015 | % of Projected Payroll for Fiscal 2016 |
|--|-----------------------|---|
| Normal Cost | \$ 167,836,193 | 5.45% |
| Amortization of Unfunded Accrued Liability | | |
| Unfunded Accrued Liability (UAL)* | \$ 444,518,650 | |
| Unamortized UAL from Prior Years | 198,103,352 | |
| Net Unamortized UAL | \$ 246,415,298 | |
| Amortization Factor (30-years, level dollar) | 13.5862 | |
| Current Year Amortization Payment | \$ 18,137,176 | |
| Payments Established in Prior Years | 16,184,757 | |
| Total Amortization Payments | \$ 34,321,933 | 1.12% |
| Calculated Employer Contribution Rate | \$ 202,158,126 | 6.57% |
| Projected Fiscal 2017 Payroll | \$ 3,294,100,000 | |
| Projected Fiscal 2017 ADC | \$ 216,422,370 | |

* Pension and ASA annuity only

Statement of Fiduciary Net Position

| | <u>June 30, 2015</u> | <u>June 30, 2014</u> |
|---|-------------------------|-------------------------|
| Assets | | |
| Cash and Cash Equivalents | \$ 1,082,812 | \$ 1,975,794 |
| Receivables | | |
| Contributions | \$ 2,249,757 | \$ 1,966,508 |
| Miscellaneous | 299,460 | 293,447 |
| Investments | 81,431,379 | 81,479,179 |
| Foreign Exchange Contracts | 1,002,489,643 | 672,205,899 |
| Accrued Interest and Dividends | 15,335,120 | 14,929,084 |
| Due from Other Funds | <u>1,116,070</u> | <u>1,230,769</u> |
| Total Receivables | \$ 1,102,921,429 | \$ 772,104,886 |
| Investments | | |
| Short Term | \$ 9,953,374 | \$ 2,183,740 |
| Pooled Unit Trust Assets | | |
| Repurchase Agreements | \$ 0 | \$ 0 |
| Short Term Investments | 223,459,504 | 214,805,070 |
| Fixed Income | 2,122,904,122 | 2,113,033,612 |
| Equities | 1,397,181,889 | 1,379,778,762 |
| Alternatives | 1,646,501,214 | 1,514,698,352 |
| Derivatives | 608,228 | 4,548,567 |
| Securities Lending Collateral | <u>211,163,685</u> | <u>358,987,612</u> |
| Total Investments | \$ 5,611,772,016 | \$ 5,588,035,715 |
| Net Capitalized Assets | <u>\$ 717,683</u> | <u>1,079,784</u> |
| Total Assets | \$ 6,716,493,940 | \$ 6,363,178,179 |
| Liabilities | | |
| Accounts Payable | \$ 236,622 | \$ 610,245 |
| Retirement Benefits Payable | 17,515,010 | 6,473,481 |
| Salaries and Benefits Payable | 0 | 0 |
| Investments Payable | 69,656,855 | 92,696,571 |
| Foreign Exchange Contracts | 1,006,080,660 | 675,496,916 |
| Securities Lending Obligations | 211,163,685 | 358,987,612 |
| Securities Sold Under Agreement to Repurchase | 32,099,795 | 37,410,269 |
| Due to Other Funds | <u>628,271</u> | <u>2,060,755</u> |
| Total Liabilities | \$ 1,337,380,898 | \$ 1,173,735,849 |
| Net Position Restricted for Pensions | \$ 5,379,113,042 | \$ 5,189,442,330 |

Statement of Changes in Fiduciary Net Position

| | June 30, 2015 | June 30, 2014 |
|---|----------------------|----------------------|
| Additions | | |
| Contributions | | |
| Member Contributions | \$ 86,515,294 | \$ 81,801,667 |
| Employer Contributions | 205,763,142 | 194,750,861 |
| Nonemployer Contributing Entity Contributions | 0 | 0 |
| Other Contributions | <u>0</u> | <u>0</u> |
| Total Contributions | \$ 292,278,436 | \$ 276,552,528 |
| Investment Income/(Loss) | | |
| Net Appreciation/(Depreciation) | | |
| Fair Value of Investments | \$ (14,664,501) | \$ 546,019,437 |
| Other Net Investment Income | 764,980 | 777,238 |
| Net Interest and Dividends Income | 71,351,232 | 69,918,382 |
| Miscellaneous Income | 0 | 0 |
| Securities Lending Income | <u>702,276</u> | <u>665,734</u> |
| Total Investment Income/(Loss) | \$ 58,153,987 | \$ 617,380,791 |
| Less Direct Investment Expenses | | |
| Investment Management Fees | \$ (29,958,051) | \$ (28,178,695) |
| Securities Lending Fees | (113,395) | (91,980) |
| Other Direct Investment Expenses | <u>(2,495,365)</u> | <u>(2,326,469)</u> |
| Total Direct Investment Expenses | \$ (32,566,811) | \$ (30,597,144) |
| Net Investment Income/(Loss) | \$ 25,587,176 | \$ 586,783,647 |
| Other Additions | | |
| Miscellaneous | \$ 24,170 | \$ 20,749 |
| Interfund Transfers | <u>7,133,930</u> | <u>8,883,525</u> |
| Total Other Additions | \$ 7,158,100 | \$ 8,904,274 |
| Total Additions | \$ 325,023,712 | \$ 872,240,449 |
| Deductions | | |
| Pension and Disability Benefits | \$ 116,186,940 | \$ 97,985,767 |
| Special Death Benefits | 0 | 0 |
| Distributions of Contributions and Interest | 11,711,936 | 10,733,857 |
| Pension Relief Distributions | 0 | 0 |
| Local Unit Withdrawals | 0 | 0 |
| Administrative Expenses | 5,602,399 | 5,347,154 |
| Project Expenses | 582,834 | 1,360,432 |
| Interfund Transfers | <u>1,268,891</u> | <u>1,048,254</u> |
| Total Deductions | \$ 135,353,000 | \$ 116,475,464 |
| Net Increase/(Decrease) in Net Position | \$ 189,670,712 | \$ 755,764,985 |
| Net Position Restricted for Pensions | | |
| Beginning of Year | \$ 5,189,442,330 | \$ 4,433,677,345 |
| End of Year | \$ 5,379,113,042 | \$ 5,189,442,330 |

Schedule of Changes in Net Pension Liability and Related Ratios

| | June 30, 2015 | June 30, 2014 | June 30, 2013 |
|--|------------------|------------------|------------------|
| Total Pension Liability | | | |
| Total Pension Liability, beginning of year | \$ 5,236,993,169 | \$ 4,748,148,931 | \$ 4,338,309,018 |
| Annuity Savings Account (ASA), beginning of year | 1,120,728,729 | 990,704,762 | 899,338,904 |
| Excluding ASA, beginning of year | 4,116,264,440 | 3,757,444,169 | 3,438,970,114 |
| Service Cost | \$ 170,892,424 | \$ 155,314,388 | \$ 147,336,605 |
| Interest Cost | 287,264,315 | 262,263,149 | 240,281,897 |
| Experience (Gains)/Losses | (40,857,253) | 504,077 | (15,994,636) |
| Assumption Changes | 263,991,050 | 0 | 0 |
| Plan Amendments | 0 | (4,504,201) | 0 |
| Benefit Payments | (90,266,941) | (77,253,362) | (68,792,905) |
| ASA Annuity Payments | 22,574,841 | 15,151,081 | 11,621,194 |
| Net Member Reassignments | 4,889,464 | 6,922,378 | 0 |
| Other | 24,170 | 422,761 | 4,021,900 |
| Net Change in Total Pension Liability, Excluding ASA | \$ 618,512,070 | \$ 358,820,271 | \$ 318,474,055 |
| Net Change in Total Pension Liability, ASA | 50,185,794 | 130,023,967 | 91,365,858 |
| Net Change in Total Pension Liability | 668,697,864 | 488,844,238 | 409,839,913 |
| Total Pension Liability, Excluding ASA, end of year | \$ 4,734,776,510 | \$ 4,116,264,440 | \$ 3,757,444,169 |
| Total Pension Liability, ASA, end of year | 1,170,914,523 | 1,120,728,729 | 990,704,762 |
| Total Pension Liability, end of year | 5,905,691,033 | 5,236,993,169 | 4,748,148,931 |
| Fiduciary Net Position | | | |
| Fiduciary Net Position, beginning of year | \$ 5,189,442,330 | \$ 4,433,677,345 | \$ 4,018,148,837 |
| Employer Contributions | 205,763,142 | 194,750,861 | 180,714,567 |
| Nonemployer contributing entities contributions | 0 | 0 | 0 |
| Member Contributions | 86,515,294 | 81,801,667 | 77,532,304 |
| Net investment income | 25,587,176 | 586,783,647 | 258,111,000 |
| Benefit Payments | (127,898,876) | (108,719,624) | (97,157,000) |
| Net Member Reassignments | 5,865,039 | 7,835,271 | 2,806,000 |
| Administrative and Project Expenses | (6,185,233) | (6,707,586) | (6,482,000) |
| Other | 24,170 | 20,749 | 3,637 |
| Net Change in Fiduciary Net Position | \$ 189,670,712 | \$ 755,764,985 | \$ 415,528,508 |
| Fiduciary Net Position, end of year | \$ 5,379,113,042 | \$ 5,189,442,330 | \$ 4,433,677,345 |
| Net Pension Liability and Related Ratios | | | |
| Net Pension Liability, beginning of year | \$ 47,550,839 | \$ 314,471,586 | \$ 320,160,181 |
| Net Pension Liability, end of year | \$ 526,577,991 | \$ 47,550,839 | \$ 314,471,586 |
| Plan's Fiduciary Net Position as a | | | |
| Percentage of the Total Pension Liability | 91.1% | 99.1% | 93.4% |
| Covered Employee Payroll (Actual) | \$ 2,742,186,608 | \$ 2,598,115,000 | \$ 2,442,496,000 |
| Net Pension Liability as a Percentage of | | | |
| Covered Employee Payroll | 19.2% | 1.8% | 12.9% |

Required Supplementary Information under GASB No. 68

| | June 30, 2015 | June 30, 2014 | June 30, 2013 |
|--|----------------------|----------------------|----------------------|
| Schedule of Contributions | | | |
| Actuarially Determined Contribution | \$ 178,260,000 | \$ 177,711,000 | \$ 167,311,000 |
| Contributions in Relation to the Actuarially Determined Contributions | <u>205,525,842*</u> | <u>194,750,861</u> | <u>180,714,567</u> |
| Contribution Deficiency/(Excess) | \$ (27,265,842) | \$ (17,039,861) | \$ (16,314,567) |
| | | | |
| Covered Employee Payroll | \$ 2,742,186,608 | \$ 2,598,115,000 | \$ 2,442,496,000 |
| Contributions as a Percentage of Covered Employee Payroll | 7.5% | 7.5% | 7.4% |
| | | | |
| Schedule of Investment Returns | | | |
| Annual Money-Weighted Rate of Return, Net of Investment Expense | 0.57% | 12.71% | 5.11% |

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the TRF Pre-1996 Account calculated using the discount rate of 6.75%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1% lower (5.75%) or 1% higher (7.75%) than the current rate:

| | 1% Decrease 5.75% | Current Rate 6.75% | 1% Increase 7.75% |
|-----------------------|------------------------------|-------------------------------|------------------------------|
| Net Pension Liability | \$ 1,408,000,000 | \$ 526,577,991 | \$ (172,300,000) |

* Excludes \$237,300 attributable to member service credit purchases.

Pension Expense

| | June 30, 2015 | June 30, 2014 |
|--|----------------------|----------------------|
| Service Cost | \$ 170,892,424 | \$ 155,314,388 |
| Interest on Total Pension Liability | 287,264,315 | 262,263,149 |
| Projected Earnings on Pension Plan Investments | (279,255,149) | (236,899,056) |
| Changes of Benefit Terms | 0 | (4,504,201) |
| Pension Plan Administrative Expenses | 6,068,861* | 6,707,586 |
| Other Changes | 0 | 0 |
| Current Period Recognition of Deferred | | |
| Outflows/(Inflows) of resources: | | |
| Differences between Expected and Actual Experience in Measurement of the Total Pension Liability | (2,879,600) | 38,775 |
| Changes of Assumptions | 18,856,504 | 0 |
| Differences between Projected and Actual Earnings on Pension Plan Investments | <u>4,202,769</u> | <u>(51,111,166)</u> |
| Total | \$ 205,150,124 | \$ 131,809,475 |

* Administrative expenses are net of \$116,372 in INPRS contributions to the plan.

**Deferred Outflows of Resources and Deferred Inflows of Resources
Related to Pensions**

| | Initial Balance | Initial Amortization Period | Annual Recognition | June 30, 2015 Balance |
|--|--------------------|--------------------------------|-----------------------|--------------------------|
| Difference between Expected and Actual Experience in Measurement of the Total Pension Liability | | | | |
| Base for Year ending June 30, 2015 | \$ (40,857,253) | 14 | \$ (2,918,375) | \$ (37,938,878) |
| Base for Year ending June 30, 2014 | 504,077 | 13 | 38,775 | 426,527 |
| Base for Year ending June 30, 2013 | 0 | | 0 | 0 |
| Change of Assumptions | | | | |
| Base for Year ending June 30, 2015 | \$ 263,991,050 | 14 | \$ 18,856,504 | \$ 245,134,546 |
| Base for Year ending June 30, 2014 | 0 | | 0 | 0 |
| Base for Year ending June 30, 2013 | 0 | | 0 | 0 |
| Differences between Projected and Actual Earnings on Pension Plan Investments | | | | |
| Base for Year ending June 30, 2015 | \$ 276,569,674 | 5 | \$ 55,313,935 | \$ 221,255,739 |
| Base for Year ending June 30, 2014 | (255,555,829) | 5 | (51,111,166) | (153,333,497) |
| Base for Year ending June 30, 2013 | 0 | | 0 | 0 |
| Changes in State's Proportion and Differences between Actual State Contributions and State's Proportionate Share of Contributions | | | | |
| Base for Year ending June 30, 2015 | \$ 0 | | \$ 0 | \$ 0 |
| Base for Year ending June 30, 2014 | 0 | | 0 | 0 |
| Base for Year ending June 30, 2013 | 0 | | 0 | 0 |
| Total | | | \$ 20,179,673 | \$ 275,544,437 |

The balances as of June 30, 2015 of the deferred outflows/(inflows) of resources will be recognized in pension expense as follows:

| Year Ended June 30, | |
|---------------------|----------------|
| 2016 | \$ 20,179,673 |
| 2017 | \$ 20,179,673 |
| 2018 | \$ 20,179,674 |
| 2019 | \$ 71,290,838 |
| 2020 | \$ 15,976,904 |
| Thereafter | \$ 127,737,675 |

Member Data

The tables below summarize the member data used in the valuation. The June 30, 2015 valuation is based on June 30, 2014 census data, with liabilities rolled-forward to the June 30, 2015 measurement date. The data summarized in this section is as of the June 30, 2014 census collection date. The pages that follow show various distributions of the member groups.

| | Males | Females | Total |
|---|---------------|----------------|---------------|
| Number of Actives | 13,862 | 38,562 | 52,424 |
| Average Age | 39.5 | 39.3 | 39.4 |
| Average Service | 10.6 | 9.9 | 10.0 |
| Average Pay | \$ 59,357 | \$ 51,981 | \$ 53,932 |
| Number of Inactive Vesteds | 1,080 | 3,052 | 4,132 |
| Average Age | 49.4 | 51.0 | 50.6 |
| Average Service | 16.1 | 15.0 | 15.3 |
| Number of Inactive Nonvesteds | 2,790 | 9,502 | 12,292 |
| Number of Retirees and Beneficiaries | 1,407 | 2,729 | 4,136 |
| Average Age | 67.2 | 66.6 | 66.8 |
| Average Years Retired | 7.1 | 6.0 | 6.4 |
| Average Monthly Annuity | \$ 206 | \$ 144 | \$ 165 |
| Average Monthly Pension | \$ 1,689 | \$ 1,191 | \$ 1,360 |
| Total Number of Members | 19,139 | 53,845 | 72,984 |

Active Members

By Attained Age and Years of Service

| Attained Age | Years of Service to Valuation Date | | | | | | Total |
|---------------------|---|---------------|--------------|--------------|--------------|------------|---------------|
| | <10 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | |
| 15-19 | | | | | | | |
| 20-24 | 1,505 | | | | | | 1,505 |
| 25-29 | 7,979 | 1 | | | | | 7,980 |
| 30-34 | 8,261 | 1,748 | 4 | | | | 10,013 |
| 35-39 | 3,498 | 5,022 | 1,354 | 3 | | | 9,877 |
| 40-44 | 2,348 | 1,855 | 3,704 | 404 | 3 | | 8,314 |
| 45-49 | 1,590 | 1,195 | 1,517 | 864 | 165 | 5 | 5,336 |
| 50-54 | 1,097 | 885 | 1,007 | 468 | 460 | 111 | 4,028 |
| 55-59 | 683 | 635 | 908 | 368 | 233 | 279 | 3,106 |
| 60-64 | 312 | 355 | 522 | 236 | 147 | 212 | 1,784 |
| 65-69 | 110 | 79 | 97 | 49 | 36 | 28 | 399 |
| 70-74 | 28 | 12 | 7 | 1 | 2 | 1 | 51 |
| 75-79 | 15 | 3 | 2 | | | | 20 |
| 80 & Over | 9 | 1 | | 1 | | | 11 |
| Total | 27,435 | 11,791 | 9,122 | 2,394 | 1,046 | 636 | 52,424 |

Average Age: 39.4
 Average Service: 10.0

Inactive Vested Members

By Attained Age and Years of Service

| Attained Age | Years of Service at Termination | | | | | | Total |
|--------------|---------------------------------|-------|-------|-------|-------|-----|-------|
| | <10 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | |
| 30-34 | | 60 | | | | | 60 |
| 35-39 | | 480 | 40 | 1 | | | 521 |
| 40-44 | | 485 | 235 | 13 | | | 733 |
| 45-49 | | 315 | 188 | 71 | 6 | 1 | 581 |
| 50-54 | | 333 | 169 | 92 | 37 | 10 | 641 |
| 55-59 | | 320 | 216 | 100 | 54 | 41 | 731 |
| 60-64 | | 304 | 155 | 80 | 43 | 55 | 637 |
| 65-69 | | 101 | 49 | 23 | 11 | 21 | 205 |
| 70-74 | | 12 | 4 | 1 | 2 | 2 | 21 |
| 75-79 | | 1 | 1 | | | | 2 |
| 80 & Over | | | | | | | |
| Total | | 2,411 | 1,057 | 381 | 153 | 130 | 4,132 |

Average Age: 50.6
 Average Service: 15.3

Retired Members

By Attained Age and Completed Years of Retirement

| Attained Age | Years of Retirement | | | | | | Total |
|--------------|---------------------|------------|------------|-----------|-----------|----------|--------------|
| | <10 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | |
| Under 40 | 6 | | | | | | 6 |
| 40-44 | 5 | 1 | | | | | 6 |
| 45-49 | 10 | 6 | | | | | 16 |
| 50-54 | 49 | 5 | | | | | 54 |
| 55-59 | 255 | 9 | | | | | 264 |
| 60-64 | 1,072 | 38 | 1 | 1 | 1 | | 1,113 |
| 65-69 | 1,209 | 275 | 17 | | | | 1,501 |
| 70-74 | 401 | 280 | 84 | 1 | | | 766 |
| 75-79 | 58 | 107 | 76 | 26 | 4 | | 271 |
| 80-84 | 10 | 19 | 34 | 30 | 5 | 1 | 99 |
| 85-89 | 2 | 3 | 5 | 12 | 9 | | 31 |
| 90 & Over | | 1 | 1 | 1 | 5 | 1 | 9 |
| Total | 3,077 | 744 | 218 | 71 | 24 | 2 | 4,136 |

Average Age: 66.8
 Average Years Retired: 6.4

Retired Members

By Year of Retirement

| Year of Retirement As of June 30 | Number | Monthly Pension | |
|-------------------------------------|--------------|---------------------|-----------------|
| | | Total | Average |
| 1981 | 1 | \$ 259 | \$ 259 |
| 1982 | 1 | 936 | 936 |
| 1986 | 2 | 1,562 | 781 |
| 1987 | 5 | 3,335 | 667 |
| 1988 | 3 | 1,050 | 350 |
| 1989 | 5 | 3,767 | 753 |
| 1990 | 11 | 10,617 | 965 |
| 1991 | 12 | 10,707 | 892 |
| 1992 | 11 | 12,590 | 1,145 |
| 1993 | 8 | 7,935 | 992 |
| 1994 | 17 | 22,921 | 1,348 |
| 1995 | 27 | 31,393 | 1,163 |
| 1996 | 33 | 42,329 | 1,283 |
| 1997 | 31 | 38,656 | 1,247 |
| 1998 | 43 | 52,434 | 1,219 |
| 1999 | 50 | 66,228 | 1,325 |
| 2000 | 79 | 101,519 | 1,285 |
| 2001 | 107 | 140,484 | 1,313 |
| 2002 | 138 | 196,229 | 1,422 |
| 2003 | 167 | 230,598 | 1,381 |
| 2004 | 192 | 262,306 | 1,366 |
| 2005 | 168 | 245,730 | 1,463 |
| 2006 | 168 | 228,869 | 1,362 |
| 2007 | 193 | 246,129 | 1,275 |
| 2008 | 250 | 352,219 | 1,409 |
| 2009 | 235 | 332,014 | 1,413 |
| 2010 | 286 | 396,725 | 1,387 |
| 2011 | 409 | 596,201 | 1,458 |
| 2012 | 510 | 685,227 | 1,344 |
| 2013 | 619 | 812,639 | 1,313 |
| 2014 | 355 | 493,409 | 1,390 |
| Total | 4,136 | \$ 5,627,020 | \$ 1,360 |

Retired Members

Reconciliation of Benefit Recipients, July 1, 2013 to July 1, 2014

| | Number of Members | Sum of Annual Allowances* |
|--|------------------------------|--------------------------------------|
| Beginning of Year Rolls | 3,665 | \$ 67,169,376 |
| Added to Rolls | 499 | 9,100,772 |
| Removed from Rolls | (28) | (353,092) |
| Benefit Changes | | (203,524) |
| End of Year Rolls | 4,136 | \$ 75,713,532 |
| Percentage Increase in Annual Allowances | | 12.72% |
| Average Annual Allowances | | \$ 18,306 |

* Pension and ASA annuity

Retired Members

Number of Benefit Recipients by Benefit Option

| Amount of Monthly Benefit¹ | Option A-1 | Option A-2 | Option A-3 | Option B-1 | Option B-2 | Option B-3 | Survivors | Disability | Total |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|--------------|
| \$1-\$500 | 188 | 122 | 19 | 129 | 21 | 37 | 22 | 59 | 597 |
| \$501-\$1,000 | 311 | 258 | 51 | 280 | 63 | 96 | 24 | 55 | 1,138 |
| \$1,001-\$1,500 | 231 | 202 | 43 | 229 | 72 | 75 | 3 | 13 | 868 |
| \$1,501-\$2,000 | 161 | 153 | 23 | 184 | 52 | 87 | 4 | 7 | 671 |
| \$2,001-\$3,000 | 117 | 131 | 20 | 233 | 61 | 94 | 4 | 5 | 665 |
| Over \$3,000 | 38 | 49 | 1 | 57 | 26 | 25 | 1 | 0 | 197 |
| Total | 1,046 | 915 | 157 | 1,112 | 295 | 414 | 58 | 139 | 4,136 |

Summary of Benefit Options

- A-1 - Provides a monthly benefit for retiree's life. In the event the retiree dies before receiving five years of payments, the beneficiary receives the remainder of the five years (60 months) of guaranteed Defined Benefit pension payments in a lump sum.
- A-2 - Provides a monthly benefit for retiree's life. The benefit ceases upon the death of the retiree.
- A-3 - Provides a monthly benefit for retiree's life, including monthly annuitization of member's Annuity Savings Account (ASA). In the event the retiree dies before receiving five years of payments, the beneficiary will receive the remainder of the five years of guaranteed pension payments. The ASA is reduced with each monthly benefit paid; if the retiree dies before reducing the balance to \$0.00, the beneficiary will receive a single payment of the amount remaining.
- B-1 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 100% of the member's Defined Benefit for the remainder of the survivor's life.
- B-2 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 66-2/3% of the member's Defined Benefit for the remainder of the survivor's life.
- B-3 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 50% of the member's Defined Benefit for the remainder of the survivor's life.
- Survivors* - Provides a monthly benefit for the surviving spouse's or dependent's life. The benefit ceases upon death of the survivor.
- Disability** - Available to members with five (5) or more years of creditable service who become disabled as determined by the Social Security Administration while teaching in Indiana.

* (of members who die while in service)

** Includes Classroom Disability – Provides a benefit of \$125 per month plus \$5 for each additional year of TRF-covered service over five years

Retired Members

Schedule of Average Benefit Payments by Service at Retirement

| | Years of Service at Retirement | | | | | | Total |
|--------------------------------------|--------------------------------|----------|----------|----------|----------|----------|----------|
| | <10 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | |
| Avg. Monthly Defined Benefit Pension | \$437 | \$467 | \$740 | \$1,085 | \$1,458 | \$2,225 | \$1,360 |
| Avg. Monthly Annuity | \$80 | \$74 | \$102 | \$130 | \$214 | \$240 | \$165 |
| Avg. Final Avg. Salary at Retirement | \$35,509 | \$45,483 | \$52,501 | \$58,946 | \$62,883 | \$72,912 | \$60,815 |
| Number of Benefit Recipients | 45 | 499 | 998 | 614 | 570 | 1,410 | 4,136 |

Reconciliation of Participant Data

| | Active | Inactive Vested | Inactive Nonvested | Survivor | Disabled | Retired | Beneficiary | Total |
|--------------------------------|---------------|-----------------|--------------------|-----------|------------|--------------|-------------|---------------|
| 6/30/2013 Census | 51,204 | 3,103 | 11,147 | 59 | 126 | 3,417 | 63 | 69,119 |
| Disabled | (12) | (7) | | | 19 | | | 0 |
| Retired | (223) | (238) | | | | 461 | | 0 |
| Terminated with Vested Benefit | (1,113) | 1,113 | | | | | | 0 |
| Terminated, due a Refund | (2,626) | | 2,626 | | | | | 0 |
| Died with Survivor | (2) | (1) | | 2 | (3) | (19) | 23 | 0 |
| Died, no Survivor* | (1) | | | (3) | (9) | (15) | (1) | (29) |
| Refunded* | (199) | (13) | (969) | | | | | (1,181) |
| Forfeited* | | (1) | (409) | | | | | (410) |
| Dropped from Database | | | (4) | | | | | (4) |
| Rehired | 720 | (146) | (574) | | | | | 0 |
| Status Corrections | | 97 | (101) | | 2 | 2 | | 0 |
| Data Corrections | | 224 | 193 | | 4 | 8 | | 429 |
| Moved to Pre-1996 Account | (3) | | | | | | | (3) |
| Moved from Pre-1996 Account | 6 | 1 | 4 | | | | | 11 |
| New Hires | 4,673 | | 379 | | | | | 5,052 |
| 6/30/2014 Census | 52,424 | 4,132 | 12,292 | 58 | 139 | 3,854 | 85 | 72,984 |

* No remaining benefit obligation in the plan.

Summary of Benefit Provisions

Changes in Plan Provisions since June 30, 2014

None

Regular Retirement

Eligibility

Age 65 with ten years of service, or age 60 with 15 years of service, or if age is at least 55 and the sum of age plus credited service is at least 85.

Annual Amount

State pension equal to total service times 1.1% of Average Annual Compensation.

Early Retirement

Eligibility

Age 50 with 15 years of service.

Annual Amount

State pension is computed as regular retirement benefit, but reduced for each month between age at early retirement and attainment of age 65. The age reduction factor is calculated as the sum of the following:

- 1/10 of 1% for each month from age 60 to 65.
- 5/12 of 1% for each month from age at early retirement to 60.

Deferred Retirement

Eligibility

Ten years of service. Benefit commences at regular or early retirement eligibility.

Annual Amount

Computed as a regular retirement benefit with state pension based on service and Average Annual Compensation at termination.

Disability Retirement

Regular Disability Benefit:

Eligibility

Five years of service.

Annual Amount

\$125 per month plus \$5 per month for each year of service credit over five years.

Disability Retirement Benefit:

Eligibility

Five years of service and determined to be disabled by the Social Security Administration. Annual verification of Social Security disability is required.

Annual Amount

Computed as a regular retirement benefit using creditable service to the date of disability and without reduction for early retirement. The minimum benefit is \$180 per month

Summary of Benefit Provisions

Death Before Retirement

Eligibility

15 years of service. Spouse to whom member had been married for two or more years is automatically eligible, or a dependent may be designated as beneficiary.

Annual Amount

Computed as regular retirement benefit but reduced in accordance with a 100% joint and survivor election.

Benefit Increases After Retirement

No automatic increases after retirement are provided. Periodically, unscheduled increases have been made. In September 2015, retirees were paid a service-related lump sum ranging from \$150 to \$450.

Average Annual Compensation

Average of highest five years of compensation. Years do not need to be consecutive.

Member Contributions

All Fund members are required by state law to contribute 3% of salary contributions to their Annuity Savings Account. These 3% contributions are generally “picked up” by the employer and contributed on a pre-tax basis on behalf of the employee. Extra voluntary contributions by the member are also possible, but on a post-tax basis. At retirement, there are six alternatives for receiving the proceeds of this account, including lump sums, full and partial rollovers, full and partial annuitization of the balance, and deferred distribution.

Forms of Benefit Payment (Pension)

The normal form of benefit payment (Option A-1) is a single life annuity with a five-year certain period. There are five optional forms of payment available, as listed below. Additionally, members retiring between ages 50 and 62 may integrate their pension benefit with their Social Security benefit by choosing Social Security Integration (Option A-4) in conjunction with the normal form or any other optional form selected. Optional forms of payment are calculated on an actuarially equivalent basis.

Option A-2: Straight Life benefit with no certain period

Option A-3: Modified Cash Refund Annuity (operates in conjunction with the Annuity Savings Account)

Option B-1: 100% Survivorship

Option B-2: 66 2/3% Survivorship

Option B-3: 50% Survivorship

State law provides for actuarially-adjusted and re-calculated benefits based on a new optional form election in the event of the death of the member’s spouse after retirement.

Optional forms of benefit are calculated based on 6.75% interest with a 50% unisex blend of the IRS 2018 combined mortality basis.

Summary of Actuarial Assumptions and Methods

The assumptions used in this valuation reflect the study of experience covering the period July 1, 2011 through June 30, 2014.

| | |
|--|---|
| Measurement Date | June 30, 2015 |
| Valuation Date | |
| Assets | June 30, 2015 |
| Liabilities | June 30, 2014. Member census data as of June 30, 2014 was used in the valuation and adjusted, where appropriate, to reflect changes between June 30, 2014 and June 30, 2015. Standard actuarial roll-forward techniques were then used to project the total pension liability computed as of June 30, 2014 to the June 30, 2015 measurement date. |
| Interest Rate / Investment Return | 6.75% per year, compounded annually (net of administrative and investment expenses). |
| Pay Increase Assumption | Sample increases are shown in a table on the following pages. The assumption for each year of service consists of a merit and/or seniority increase and 2.25% for price inflation. |
| Total Active Member Payroll | Assumed to increase 9% from Fiscal 2015 to Fiscal 2016, and 7% from Fiscal 2016 to Fiscal 2017 for the 1996 Account for purposes of calculating the projected contribution for the 2016 and 2017 fiscal years. |
| Price Inflation | 2.25% per year. Price inflation is not directly tied to benefits; however, it is a component of the economic model used to determine total wage inflation. |
| Mortality | |
| Healthy | RP-2014 White Collar Mortality Table with Social Security Administration generational projection scale from 2006. |
| Disabled | RP-2014 White Collar Mortality Table with Social Security Administration generational projection scale from 2006. |
| Retirement | Probabilities are shown in tables on the following pages. |
| Withdrawal | Sample probabilities are shown in tables on the following pages. |
| Disability | Sample probabilities are shown in a table on the following pages. |
| Actuarial Cost Method | Entry Age Normal (level percent of pay) method, with a 30-year, closed, level dollar amortization of the Unfunded Accrued Liability arising from all sources including actuarial gains and losses. The weighted average amortization period on 6/30/2015 is 26 years. |
| Asset Valuation Method | The Actuarial Value of Assets recognizes investment gains and losses in equal installments over four years. However, the Actuarial Value is limited to no more than 20% greater than or 20% less than the Market Value of Assets. Investment experience on ASA account balances is not smoothed. |

Summary of Actuarial Assumptions and Methods

| | |
|--|--|
| Marriage Assumption | 100% of members are assumed to be married for purposes of valuing death-in-service benefits. Male spouses are assumed to be three years older than female spouses. |
| Pay Increase Timing | Beginning of (fiscal) year. Payroll amounts stated in the valuation data are amounts projected to be paid during the current year. |
| Decrement Timing | Decrements are assumed to occur at the beginning of the year. |
| Other | Disability and withdrawal decrements do not operate after member reaches retirement eligibility. Only the withdrawal and death decrements operate during the first ten years of service. |
| Miscellaneous Adjustments | The calculated liabilities and normal costs were increased by 1% to account for the inclusion of unused sick leave in the calculation of Average Annual Compensation. |
| Actuarial Equivalence Basis for Optional Forms of Payment | 6.75% interest with a 50% unisex blend of the 2018 IRS combined mortality basis. |
| Explicit Expense Load | None. |
| COLA Assumption | 1.0% compounded annually on pension portion, with the first COLA credited on January 1, 2017. The January 1, 2016 assumed 1.0% COLA was replaced by a service-related lump sum (a "13 th check") ranging from \$150 to \$450 in September, 2015. |
| Cost for ASA Conversions | ASA conversions between 10/1/2014 and 9/30/2015 will be based on a 5.75% conversion rate. Conversions between 1/1/2015 and 12/31/2016 will be based on a 4.50% conversion rate. After 1/1/2017, ASA annuity conversions will occur outside of the plan. |
| ASA Annuitization | 50% of ASA balances are assumed to be converted to annuities at retirement prior to 1/1/2017, 0% thereafter. |
| Employee Census and Asset Data | The member census data and the asset information for this valuation were furnished by the Chief Financial Officer and Staff. We did not audit the information provided, but we did review it thoroughly for reasonableness and compared it with the prior year's submission for consistency. |

The actuarial valuation computations were made under the supervision of a Member of the American Academy of Actuaries (MAAA).

Summary of Actuarial Assumptions and Methods

Probabilities of Age and Service Retirement

| Regular Retirement | | Rule of 85 Retirement | | Early Retirement | |
|--------------------|-------------|-----------------------|-------------|------------------|-------------|
| Age | Probability | Age | Probability | Age | Probability |
| | | | | 50-53 | 0.020 |
| | | | | 54 | 0.050 |
| | | 55 | 0.150 | 55 | 0.050 |
| | | 56 | 0.150 | 56 | 0.050 |
| | | 57 | 0.150 | 57 | 0.065 |
| | | 58 | 0.150 | 58 | 0.080 |
| | | 59 | 0.200 | 59 | 0.120 |
| 60 | 0.200 | 60 | 0.200 | | |
| 61 | 0.250 | 61 | 0.250 | | |
| 62 | 0.300 | 62 | 0.300 | | |
| 63 | 0.350 | 63 | 0.350 | | |
| 64 | 0.400 | 64 | 0.400 | | |
| 65 | 0.450 | 65 | 0.450 | | |
| 66 | 0.450 | 66 | 0.450 | | |
| 67 | 0.450 | 67 | 0.450 | | |
| 68 | 0.450 | 68 | 0.450 | | |
| 69 | 0.450 | 69 | 0.450 | | |
| 70 | 1.0000 | 70 | 1.0000 | | |

Probabilities of Disability

| Attained Age | Age-Based | |
|--------------|-----------|--------|
| | Male | Female |
| 25 | 0.0001 | 0.0001 |
| 30 | 0.0001 | 0.0001 |
| 35 | 0.0001 | 0.0001 |
| 40 | 0.0001 | 0.0001 |
| 45 | 0.0002 | 0.0002 |
| 50 | 0.0005 | 0.0005 |
| 55 | 0.0009 | 0.0009 |
| 60 | 0.0010 | 0.0010 |

Summary of Actuarial Assumptions and Methods

Probabilities of Withdrawal

| Years of Service | Service-Based | |
|-------------------------|----------------------|---------------|
| | Male | Female |
| 0 | 0.3500 | 0.3500 |
| 1 | 0.1400 | 0.1400 |
| 2 | 0.1100 | 0.1100 |
| 3 | 0.0900 | 0.0900 |
| 4 | 0.0800 | 0.0800 |
| 5 | 0.0700 | 0.0700 |
| 6 | 0.0600 | 0.0600 |
| 7 | 0.0500 | 0.0550 |
| 8 | 0.0450 | 0.0500 |
| 9 | 0.0450 | 0.0450 |

| Attained Age | Age-Based* | |
|---------------------|-------------------|---------------|
| | Male | Female |
| 30 | 0.0225 | 0.0300 |
| 35 | 0.0225 | 0.0300 |
| 40 | 0.0225 | 0.0200 |
| 45 | 0.0225 | 0.0200 |
| 50 | 0.0225 | 0.0200 |
| 55 | 0.0225 | 0.0200 |
| 60 | 0.0225 | 0.0200 |

**Age-Based rates apply only if 10 or more years of service.*

Summary of Actuarial Assumptions and Methods

Pay Increase Assumption

| Years of Service | Merit & Seniority | Inflation | Total |
|-------------------------|------------------------------|------------------|--------------|
| 1 | 10.25% | 2.25% | 12.50% |
| 5 | 2.75% | 2.25% | 5.00% |
| 10 | 2.75% | 2.25% | 5.00% |
| 15 | 1.50% | 2.25% | 3.75% |
| 20 | 0.25% | 2.25% | 2.50% |
| 25 | 0.25% | 2.25% | 2.50% |
| 30 | 0.25% | 2.25% | 2.50% |
| 35 | 0.25% | 2.25% | 2.50% |
| 40 | 0.25% | 2.25% | 2.50% |

Definitions of Technical Terms

| | |
|-----------------------------------|--|
| Accrued Service | Service credited under the system that was rendered before the date of the actuarial valuation. |
| Accrued Liability | The difference between the actuarial present value of future benefit payments and the actuarial present value of future normal costs. Also referred to as “actuarial accrued liability” or “past service liability”. |
| Actuarial Assumptions | Estimates of expected future experience with respect to rates of mortality, disability, turnover, retirement, rate of investment return, and pay increases. Decrement assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (pay increases and investment return) consist of the underlying rates in an inflation-free environment plus a provision for a long-term average rate of inflation. |
| Actuarial Cost Method | A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future benefit payments” between future normal costs and actuarial accrued liabilities. Sometimes referred to as the “actuarial funding method”. |
| Actuarial Equivalent | One series of payments is said to be actuarially equivalent to another series of payments if the two series have the same actuarial present value. |
| Actuarial Gain / (Loss) | The difference between actual unfunded actuarial accrued liability and anticipated unfunded actuarial accrued liability — during the period between two valuation dates. It is a measurement of the difference between actual and expected experience. |
| Actuarial Present Value | The single amount now that is equal to a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment. |
| Amortization | Paying off a present value with periodic payments. |
| Normal Cost | The portion of the actuarial present value of future benefits that is assigned to the current year by the actuarial cost method. Sometimes referred to as “current cost”. |
| Unfunded Accrued Liability | The difference between the accrued liability and the actuarial value of assets. Sometimes referred to as “unfunded past service liability” or “unfunded actuarial accrued liability” or simply as “unfunded liability”. |

The Actuarial Valuation Process

The **actuarial valuation** is the mathematical process by which a contribution rate is determined. The flow of activity constituting the valuation may be summarized as follows:

Covered Person Data: Furnished by the Plan Administrator

Retired Members and Beneficiaries Now Receiving Benefits
Former Employees with Vested Benefits Not Yet Payable
Active Members

+ **Asset Data (Cash and Investments):** Furnished by the Plan Administrator

+ **Estimates of Future Experience (Actuarial Assumptions):** Established by the Board of Trustees after Consulting with the Actuary

+ **Funding Method:** The Allocation of Employer Costs to Past Service, Current Service, and Future Service

+ **Mathematically Combining the Assumptions, the Funding Method, and the Data**

= **Determination of:**

Plan Funded Status and Employer Contribution Rate

Active Member Data: Total Fund

| June 30 | Number | Valuation Payroll (\$000s) | Average | | | |
|---------|--------|----------------------------------|---------|---------|-----------|-------------------|
| | | | Age | Service | Pay | Pay Increase % |
| 1975 | 63,932 | \$ 749,200 | 38.7 | 10.9 | \$ 11,719 | |
| 1980 | 66,575 | 1,107,699 | 39.7 | 11.9 | 16,638 | |
| 1985 | 62,932 | 1,519,887 | 41.5 | 14.2 | 24,151 | |
| 1987 | 64,157 | 1,751,709 | 42.0 | 14.5 | 27,303 | |
| 1989 | 65,986 | 2,044,797 | 42.6 | 14.9 | 30,988 | |
| 1991 | 63,373 | 2,278,715 | 43.0 | 15.4 | 35,957 | |
| 1992 | 63,980 | 2,416,263 | 43.8 | 16.0 | 37,766 | 5.0% |
| 1993 | 64,594 | 2,536,165 | 44.0 | 16.1 | 39,263 | 4.0 |
| 1994 | 65,209 | 2,614,915 | 44.1 | 16.2 | 40,101 | 2.1 |
| 1995 | 66,542 | 2,728,811 | 44.2 | 16.2 | 41,009 | 2.3 |
| 1996 | 78,866 | 2,878,329 | 42.9 | 14.1 | 36,497 | (11.0) |
| 1997 | 84,206 | 2,984,604 | 42.4 | 13.2 | 35,444 | (2.9) |
| 1998 | 84,664 | 3,094,941 | 42.5 | 13.2 | 36,556 | 3.1 |
| 1999 | 77,745 | 3,294,326 | 44.1 | 15.1 | 42,374 | 15.9 |
| 2000 | 77,870 | 3,192,605 | 44.4 | 15.2 | 40,999 | (3.2) |
| 2001 | 75,648 | 3,318,877 | 44.6 | 15.7 | 43,872 | 7.0 |
| 2002 | 75,383 | 3,609,471 | 44.7 | 15.8 | 47,884 | 9.1 |
| 2003 | 73,641 | 3,585,135 | 44.5 | 15.5 | 48,684 | 1.7 |
| 2004 | 73,510 | 3,651,653 | 44.5 | 15.5 | 49,676 | 2.0 |
| 2005 | 73,923 | 3,734,330 | 44.4 | 15.4 | 50,516 | 1.7 |
| 2006 | 73,350 | 3,802,721 | 44.5 | 15.4 | 51,844 | 2.6 |
| 2007 | 75,833 | 4,267,995 | 44.9 | 15.5 | 56,281 | 8.6 |
| 2008 | 76,256 | 4,348,535 | 44.6 | 15.6 | 57,025 | 1.3 |
| 2009 | 74,343 | 4,339,032 | 44.4 | 15.3 | 58,365 | 2.3 |
| 2010 | 72,872 | 4,312,611 | 44.2 | 15.2 | 59,181 | 1.4 |
| 2011 | 71,343 | 4,269,944 | 44.5 | 15.5 | 59,851 | 1.1 |
| 2012 | 70,573 | 4,232,018 | 44.4 | 15.4 | 59,967 | 0.2 |
| 2013 | 70,414 | 4,124,368 | 43.5 | 14.6 | 58,573 | (2.3) |
| 2014* | 70,414 | 4,124,368 | 43.5 | 14.6 | 58,573 | (2.3) |
| 2015* | 68,734 | 4,006,157 | 43.0 | 14.1 | 58,285 | (0.5) |

* Valuations on and after June 30, 2014 are based on census data collected at the prior measurement date.

Member Data: Total Fund

The tables below summarize the member data used in the valuation. The June 30, 2015 valuation is based on June 30, 2014 census data, with liabilities rolled-forward to the June 30, 2015 measurement date. The data summarized in this section is as of the June 30, 2014 census collection date. The pages that follow show various distributions of the member groups.

| | Males | Females | Total |
|---|---------------|----------------|----------------|
| Number of Actives | 18,025 | 50,709 | 68,734 |
| Average Age | 43.0 | 43.0 | 43.0 |
| Average Service | 14.7 | 13.9 | 14.1 |
| Average Pay | \$ 63,630 | \$ 56,385 | \$ 58,285 |
| Number of Inactive Vesteds | 2,159 | 6,518 | 8,677 |
| Average Age | 54.0 | 55.0 | 54.8 |
| Average Service | 21.1 | 19.7 | 20.1 |
| Number of Inactive Nonvesteds | 2,869 | 9,831 | 12,700 |
| Number of Retirees and Beneficiaries | 18,052 | 36,298 | 54,350 |
| Average Age | 72.3 | 72.1 | 72.2 |
| Average Years Retired | 12.6 | 12.3 | 12.4 |
| Average Monthly Annuity | \$ 224 | \$ 177 | \$ 192 |
| Average Monthly Pension | \$ 1,632 | \$ 1,379 | \$ 1,463 |
| Total Number of Members | 41,105 | 103,356 | 144,461 |

Active Members: Total Fund

By Attained Age and Years of Service

| Attained Age | Years of Service to Valuation Date | | | | | | Total |
|--------------|------------------------------------|---------------|---------------|--------------|--------------|--------------|---------------|
| | <10 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | |
| 15-19 | | | | | | | |
| 20-24 | 1,505 | | | | | | 1,505 |
| 25-29 | 7,979 | 1 | | | | | 7,980 |
| 30-34 | 8,261 | 1,748 | 4 | | | | 10,013 |
| 35-39 | 3,499 | 5,022 | 1,354 | 3 | | | 9,878 |
| 40-44 | 2,476 | 1,907 | 4,084 | 947 | 6 | | 9,420 |
| 45-49 | 1,710 | 1,311 | 1,761 | 2,620 | 770 | 8 | 8,180 |
| 50-54 | 1,156 | 942 | 1,149 | 1,253 | 2,575 | 850 | 7,925 |
| 55-59 | 731 | 684 | 1,025 | 1,045 | 1,279 | 2,692 | 7,456 |
| 60-64 | 350 | 384 | 611 | 689 | 698 | 2,397 | 5,129 |
| 65-69 | 135 | 89 | 115 | 127 | 134 | 476 | 1,076 |
| 70-74 | 33 | 17 | 11 | 10 | 12 | 47 | 130 |
| 75-79 | 20 | 5 | 2 | | | 3 | 30 |
| 80 & Over | 9 | 1 | | 1 | | 1 | 12 |
| Total | 27,864 | 12,111 | 10,116 | 6,695 | 5,474 | 6,474 | 68,734 |

Average Age: 43.0
Average Service: 14.1

Inactive Vested Members: Total Fund

By Attained Age and Years of Service

| Attained Age | Years of Service at Termination | | | | | | Total |
|--------------|---------------------------------|-------|-------|-------|-------|-------|-------|
| | 0-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | |
| 20-24 | | | | | | | |
| 25-29 | | | | | | | |
| 30-34 | | 60 | | | | | 60 |
| 35-39 | | 480 | 40 | 1 | | | 521 |
| 40-44 | | 545 | 283 | 25 | | | 853 |
| 45-49 | | 471 | 289 | 143 | 31 | 2 | 936 |
| 50-54 | | 546 | 323 | 205 | 151 | 27 | 1,252 |
| 55-59 | | 536 | 398 | 269 | 261 | 404 | 1,868 |
| 60-64 | | 646 | 291 | 258 | 216 | 875 | 2,286 |
| 65-69 | | 232 | 88 | 76 | 85 | 312 | 793 |
| 70-74 | | 25 | 14 | 7 | 5 | 23 | 74 |
| 75-79 | | 3 | 3 | | | 4 | 10 |
| 80 & Over | | 10 | 6 | 3 | 5 | | 24 |
| Total | | 3,554 | 1,735 | 987 | 754 | 1,647 | 8,677 |

Average Age: 54.8
Average Service: 20.1

Retired Members: Total Fund

By Attained Age and Completed Years of Retirement

| Attained Age | Years of Retirement | | | | | | Total |
|--------------|---------------------|--------|-------|-------|-------|-------|--------|
| | 0-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | |
| Under 40 | 16 | 10 | 7 | 5 | 5 | 1 | 44 |
| 40-44 | 14 | 4 | 8 | 3 | | 1 | 30 |
| 45-49 | 30 | 14 | 9 | 8 | 1 | | 62 |
| 50-54 | 137 | 32 | 18 | 12 | 2 | 2 | 203 |
| 55-59 | 1,536 | 53 | 32 | 23 | 10 | 6 | 1,660 |
| 60-64 | 8,240 | 244 | 70 | 53 | 35 | 14 | 8,656 |
| 65-69 | 10,412 | 3,559 | 279 | 92 | 38 | 16 | 14,396 |
| 70-74 | 3,648 | 4,174 | 2,386 | 291 | 67 | 31 | 10,597 |
| 75-79 | 524 | 1,715 | 3,162 | 1,347 | 288 | 70 | 7,106 |
| 80-84 | 47 | 319 | 1,548 | 2,306 | 776 | 265 | 5,261 |
| 85-89 | 15 | 63 | 221 | 1,294 | 1,589 | 651 | 3,833 |
| 90-94 | 7 | 4 | 22 | 149 | 727 | 813 | 1,722 |
| 95-99 | 2 | 2 | 4 | 10 | 68 | 577 | 663 |
| 100 & Over | | | | | 1 | 116 | 117 |
| Total | 24,628 | 10,193 | 7,766 | 5,593 | 3,607 | 2,563 | 54,350 |

Average Age: 72.2
Average Years Retired: 12.4

Retired Members: Total Fund

By Year of Retirement

| Year of Retirement As of June 30 | Number | Monthly Pension | |
|-------------------------------------|---------------|---------------------|----------------|
| | | Total | Average |
| Before 1978 | 507 | \$213,733 | \$422 |
| 1978 | 146 | 71,853 | 492 |
| 1979 | 177 | 93,082 | 526 |
| 1980 | 235 | 142,291 | 605 |
| 1981 | 244 | 139,703 | 573 |
| 1982 | 240 | 139,082 | 580 |
| 1983 | 339 | 207,971 | 613 |
| 1984 | 396 | 251,411 | 635 |
| 1985 | 579 | 404,555 | 699 |
| 1986 | 535 | 384,696 | 719 |
| 1987 | 649 | 500,973 | 772 |
| 1988 | 766 | 629,646 | 822 |
| 1989 | 651 | 566,924 | 871 |
| 1990 | 1,015 | 1,025,749 | 1,011 |
| 1991 | 1,024 | 1,122,755 | 1,096 |
| 1992 | 955 | 1,070,414 | 1,121 |
| 1993 | 1,007 | 1,208,165 | 1,200 |
| 1994 | 1,156 | 1,418,158 | 1,227 |
| 1995 | 1,513 | 1,925,593 | 1,273 |
| 1996 | 1,521 | 1,984,455 | 1,305 |
| 1997 | 1,325 | 1,719,292 | 1,298 |
| 1998 | 1,679 | 2,170,943 | 1,293 |
| 1999 | 1,577 | 2,160,267 | 1,370 |
| 2000 | 1,860 | 2,622,537 | 1,410 |
| 2001 | 1,863 | 2,699,585 | 1,449 |
| 2002 | 2,207 | 3,192,118 | 1,446 |
| 2003 | 1,991 | 2,937,835 | 1,476 |
| 2004 | 2,329 | 3,477,752 | 1,493 |
| 2005 | 2,213 | 3,471,776 | 1,569 |
| 2006 | 2,396 | 3,808,580 | 1,590 |
| 2007 | 2,316 | 3,616,245 | 1,561 |
| 2008 | 2,789 | 4,627,312 | 1,659 |
| 2009 | 2,098 | 3,623,289 | 1,727 |
| 2010 | 2,371 | 4,214,916 | 1,778 |
| 2011 | 3,240 | 5,916,985 | 1,826 |
| 2012 | 3,607 | 6,674,399 | 1,850 |
| 2013 | 3,226 | 6,046,865 | 1,874 |
| 2014 | 1,608 | 3,029,405 | 1,884 |
| Total | 54,350 | \$79,511,307 | \$1,463 |

Retired Members: Total Fund

Number of Benefit Recipients by Benefit Option

| Amount of Monthly Benefit¹ | Option A-1 | Option A-2 | Option A-3 | Option B-1 | Option B-2 | Option B-3 | Survivors | Disability | Total |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|---------------|
| \$1-\$500 | 1,836 | 948 | 222 | 1,225 | 256 | 454 | 480 | 137 | 5,558 |
| \$501-\$1,000 | 2,316 | 1,649 | 346 | 2,189 | 740 | 1,028 | 357 | 226 | 8,851 |
| \$1,001-\$1,500 | 3,340 | 2,660 | 470 | 4,154 | 1,263 | 1,421 | 144 | 236 | 13,688 |
| \$1,501-\$2,000 | 3,206 | 3,096 | 372 | 4,484 | 1,465 | 1,772 | 134 | 119 | 14,648 |
| \$2,001-\$3,000 | 2,275 | 2,726 | 289 | 2,753 | 1,042 | 1,291 | 57 | 32 | 10,465 |
| Over \$3,000 | 264 | 305 | 20 | 297 | 125 | 128 | 1 | 0 | 1,140 |
| Total | 13,237 | 11,384 | 1,719 | 15,102 | 4,891 | 6,094 | 1,173 | 750 | 54,350 |

¹Pension only

Summary of Benefit Options

- A-1 - Provides a monthly benefit for retiree's life. In the event the retiree dies before receiving five years of payments, the beneficiary receives the remainder of the five years (60 months) of guaranteed Defined Benefit pension payments in a lump sum.
- A-2 - Provides a monthly benefit for retiree's life. The benefit ceases upon the death of the retiree.
- A-3 - Provides a monthly benefit for retiree's life, including monthly annuitization of member's Annuity Savings Account (ASA). In the event the retiree dies before receiving five years of payments, the beneficiary will receive the remainder of the five years of guaranteed pension payments. The ASA is reduced with each monthly benefit paid; if the retiree dies before reducing the balance to \$0.00, the beneficiary will receive a single payment of the amount remaining.
- B-1 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 100% of the member's Defined Benefit for the remainder of the survivor's life.
- B-2 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 66-2/3% of the member's Defined Benefit for the remainder of the survivor's life.
- B-3 - Provides a monthly benefit for retiree's life. Upon the death of the retiree, the qualified designated survivor receives 50% of the member's Defined Benefit for the remainder of the survivor's life.
- Survivors* - Provides a monthly benefit for the surviving spouse's or dependent's life. The benefit ceases upon death of the survivor.
- Disability** - Available to members with five (5) or more years of creditable service who become disabled as determined by the Social Security Administration while teaching in Indiana.

* (of members who die while in service)

** Includes Classroom Disability – Provides a benefit of \$125 per month plus \$5 for each additional year of TRF-covered service over five years

Retired Members: Total Fund

Schedule of Average Benefit Payments by Service at Retirement

| | Years of Service at Retirement | | | | | | Total |
|--------------------------------------|--------------------------------|----------|----------|----------|----------|----------|----------|
| | <10 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | |
| Avg. Monthly Defined Benefit Pension | \$443 | \$322 | \$574 | \$877 | \$1,229 | \$1,829 | \$1,463 |
| Avg. Monthly Annuity | \$77 | \$101 | \$105 | \$133 | \$166 | \$229 | \$192 |
| Avg. Final Avg. Salary at Retirement | \$36,708 | \$29,761 | \$40,461 | \$46,607 | \$51,252 | \$57,625 | \$52,905 |
| Number of Benefit Recipients | 87 | 1,737 | 4,777 | 6,224 | 8,745 | 32,780 | 54,350 |

Reconciliation of Participant Data: Total Fund

| | Active | Inactive Vested | Inactive Nonvested | Survivor | Disabled | Retired | Beneficiary | Total |
|--------------------------------|---------------|-----------------|--------------------|--------------|------------|---------------|--------------|----------------|
| 6/30/2013 Census | 70,414 | 6,417 | 11,693 | 1,205 | 741 | 47,373 | 3,691 | 141,534 |
| Disabled | (22) | (16) | | | 38 | | | 0 |
| Retired | (1,198) | (1,074) | | | | 2,272 | | 0 |
| Terminated with Vested Benefit | (3,082) | 3,082 | | | | | | 0 |
| Terminated, due a Refund | (2,680) | | 2,680 | | | | | 0 |
| Died with Survivor | (16) | (3) | | 8 | (13) | (382) | 406 | 0 |
| Died, no Survivor* | (2) | (2) | | (39) | (31) | (789) | (185) | (1,048) |
| Refunded* | (210) | (36) | (1,043) | | | | | (1,289) |
| Forfeited* | | (2) | (468) | | | | | (470) |
| Dropped from Database | | | (17) | | | | | (17) |
| Rehired | 776 | (186) | (590) | | | | | 0 |
| Status Corrections | | 128 | (134) | (3) | (1) | 10 | | 0 |
| Data Corrections | | 369 | 198 | 2 | 12 | 22 | 13 | 616 |
| New Hires | 4,754 | | 381 | | | | | 5,135 |
| 6/30/2014 Census | 68,734 | 8,677 | 12,700 | 1,173 | 746 | 48,506 | 3,925 | 144,461 |

* No remaining benefit obligation in the plan.